

COOPERNOOKIA : A NEW GENUS OF GOODENIACEAE

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(Plate X)

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Synopsis

A new genus is described with the type species *C. barbata*, based on *Goodenia barbata*. It is distinguished from *Goodenia* by the ovoid, scarcely compressed, strophiolate seed; the stellate hairs on the vegetative parts of the plant; a basic chromosome number of 7, and the enate-barbulate corolla. A key is provided to the species with descriptions, specimen citations and distribution maps.

In previous communications (Carolin, 1966; Peacock, 1963) the differences between the group of species showing affinity with *Goodenia barbata* and the rest of that genus have been emphasized. These differences seem to be of the same order as those that separate *Goodenia* and *Scaevola* and certainly of a greater order than separate *Goodenia* from *Calogyne*, *Selliera*, *Catosperma*, etc. In fact, in some ways this new genus stands in an intermediate position between *Scaevola* and *Goodenia*. The seeds in particular (Carolin, 1966) and the long enations from the surface of the corolla which seems to be homologous with the "penicillate hairs" occurring in the same position in *Scaevola*, seem to indicate this. Both hair types are multicellular and the sole difference seems to be in the cluster of cells at the top of those in *Scaevola*. The difference in chromosome number, however, seems to preclude any very close affinity between *Coopernookia* and either *Goodenia* or *Scaevola* (Peacock, 1963).

Krause (1912) dealt with three of the five species; *G. chisholmii* was described later. The three species are dispersed between sect. *Monochila* (*G. phyllicoides*) and his sect. *Eu-goodenia* ser. *Suffruticosae* (*G. strophiolata*, *G. barbata*). In *Monochila*, Krause emphasized the arrangements of the corolla lobes ("Digitatam patentes") and the fact that they are almost all the same length; the corolla is not "bilabiate" as in the other sections. In the face of the more numerous distinguishing features outlined above these two characters based on one organ seem of little diagnostic value. Bentham's (1869) treatment is essentially the same although his series are different. Terminology for the corolla parts is the same as given in the previous communication on *Velleia* (Carolin, 1967).

COOPERNOOKIA, gen. nov.

Fructuli erecti vel effusi. Folia alterna pilis glandulis et stellatis, saepe ubi movella viscida ubique vetustioria vernicosa. Flores in racemis vel thyrsis inflorescentiis partialibus paucifloris dispositi, bracteolati: bractee herbaceae. Corolla caerulea vel rosea vel alba pilis stellatis et extus interdum glandularibus, obscure saccata, enationibus barbata. Dissepimentum ovarii breve ovulas paucas gerens. Semina ovoidea vix compressa nec alata nec incrassato-marginata. Embryo teres in endospermia inclusus.

Perennial undershrubs, erect or spreading. Stems \pm woody, sometimes echinate. Leaves simple, spirally arranged, stellate and usually glandular hairy, \pm viscid when young, often varnished when mature. Flowers arranged in terminal racemes or few-flowered thyrses, bracteolate, sessile or shortly pedicellate; bracts leafy. Sepals 5, linear, all united to the inner floral whorls for

about half the height of the ovary, glandular—and/or stellate-hairy, free from each other. *Corolla* tubular at the base, often very shortly so, with an obscure anterior pocket, epigynous; lobes 5, equal or unequal, broadly winged, stellate—and glandular-hairy on the outside, enate-barbulate on the inside especially towards the throat, auricle scarcely differentiated. *Stamens* 5, free from each other but epigynous; anthers minutely apiculate. *Ovary* with a short basal dissepiment bearing 2 to 8 ovules; style simple; indusium depressed obovate, usually \pm curved, ciliate on the margin, entire; stigma bifid. *Fruit* a 2-valved inferior capsule with each valve often 2-fid. *Seeds* 2-6, ovoid, scarcely compressed, shiny with a thick-walled epidermal pallsade, strophiolate and without a wing or thickened rim. *Embryo* terete, embedded in endosperm.

The name *Cooperookia* is derived from the Cooperook State Forest on the northern coast of New South Wales where one of the species, *C. chisholmii* (Blakely) Carolin is common.

Type Species : *C. barbata* (R.Br.), comb. nov. *Basionym* : *Goodenia barbata* R.Br.

1. *C. POLYGALACEA* (De Vriese), comb. nov.

Nomenclatural Synonym : *Dampiera*? *polygalacea* De Vriese, Gooden., 115 (1854). *Taxonomic synonym* : *Goodenia phyllicoides* F. Muell., *Fragm.*, 1 : 206 (1859); Benth., *Fl. Austr.*, 4 : 55 (1869); Krause, *Pflrch.*, 54 : 42 (1912).

Erect or spreading undershrubs up to 60 cm. tall. *Stems* up to 6 mm. diam., woody, tomentose when young with mainly stellate hairs, glabrescent, usually much branched, echinate. *Leaves* deciduous and therefore chiefly present towards the ends of the branches, spirally arranged, linear or narrow-oblong to elliptic, narrowing gradually towards the base but sessile, 12-30 mm. long, 3-6 mm. wide with revolute entire margins, obtuse, stellate-tomentose on both surfaces when young but with the upper surface glabrescent leaving scurfy scars, minute glandular hairs also present, frequently varnished when mature; the lower surface remaining tomentose. *Flowers* in compact terminal leafy racemes, sessile within two linear tomentose bracteoles c. 7 mm. long, articulate above bracteoles. *Sepals* linear or very narrow-elliptic, 6-8 mm. long, 1 mm. wide, stellate-tomentose with one or two branches of each hair often longer than the others, acute, entire. *Corolla* lilac-pink to white, 14 mm. long with a very short obscure anterior pocket, stellate-hairy on outer surface with similar hairs to those of the calyx, enate-barbulate and sparsely villous-hairy inside; tube almost obsolete; lobes equal, \pm digitately spreading, narrow-elliptic to narrow-oblong, 8-9 mm. long, 1.5-2 mm. wide with broad (2-3 mm.) lateral wings on either side, the wings on the lower margin of the superior lobes slightly larger and sub-auriculate. *Stamens* 5, free; filaments narrow-linear, c. 3 mm. long; anthers narrow-oblong, c. 1 mm. long, obtuse. *Ovary* with a very short dissepiment bearing 6-8 ovules arranged in two rows on either side; style villous, c. 5 mm. long, \pm curved, not folded, depressed-ovate, c. 1.5 mm. wide; indusium villous on both surfaces with a slightly curved orifice beset with short white bristles (0.5 mm.) on both lips; stigma bilobed. *Capsule* ovoid, tomentose, 4-valved. *Seeds* several per capsule, ovoid, strophiolate (mature seeds not seen).

Range : South-western Australia between Albany and Esperance.

Habitat : Sandy heaths.

Chromosome number : $n=7$ voucher specimen marked with an asterisk below).

Typification : *Dampiera*? *polygalacea* De Vriese—*Holotype*—S.W. Australia, Drummond 356 (K. *Isotype*—MEL 18329). *Goodenia phyllicoides* F. Muell.—*Holotype*—Gardiner River, Australiae Occidentalis, Maxwell (MEL 1963).

Discussion : According to Article 34 of Internat. Code Bot. Nomencl. (1961), which deals explicitly with question marks published with taxa, the binomial *Dampiera*? *polygalacea* was validly published by De Vriese and, since the type

belongs to the species under consideration, this provides the specific epithet (Art. 55).

This species shows some variation in leaf width which may have a geographical basis but the other features seem to be remarkably constant.

Selected specimens examined. Between Salmon Gums and Grass Patch, W. E. Blackall no. 1011, Nov. 1931 (PERTH): 48 mls. Nth Esperance, P. G. Wilson no. 3016, 12.9.64 (AD96528102. PERTH. CANB): Near Cape Arid, Maxwell (MEL 18324): Jerdacuttup River, Ravensthorpe, T. E. H. Aplin no. 26806, 27.10.63 (PERTH): Jerramungup, J. S. Beard no. 3642, 18th Oct. 1964 (PERTH): Young River, R. Carolin no. 3375 11.9.61 (SYD): Hopetown to Ravensthorpe 20 miles from Ravensthorpe, W. J. Peacock no. 60954, 1.9.1960 (SYD)*: Upper Kalgon River, F. Muell., Oct. 1867 (MEL 18321. MEL 18322): Kalgon Plains, J. H. Maiden, Nov. 1909 (NSW 80793): Kalgon River, Oldfield (MEL 18328).

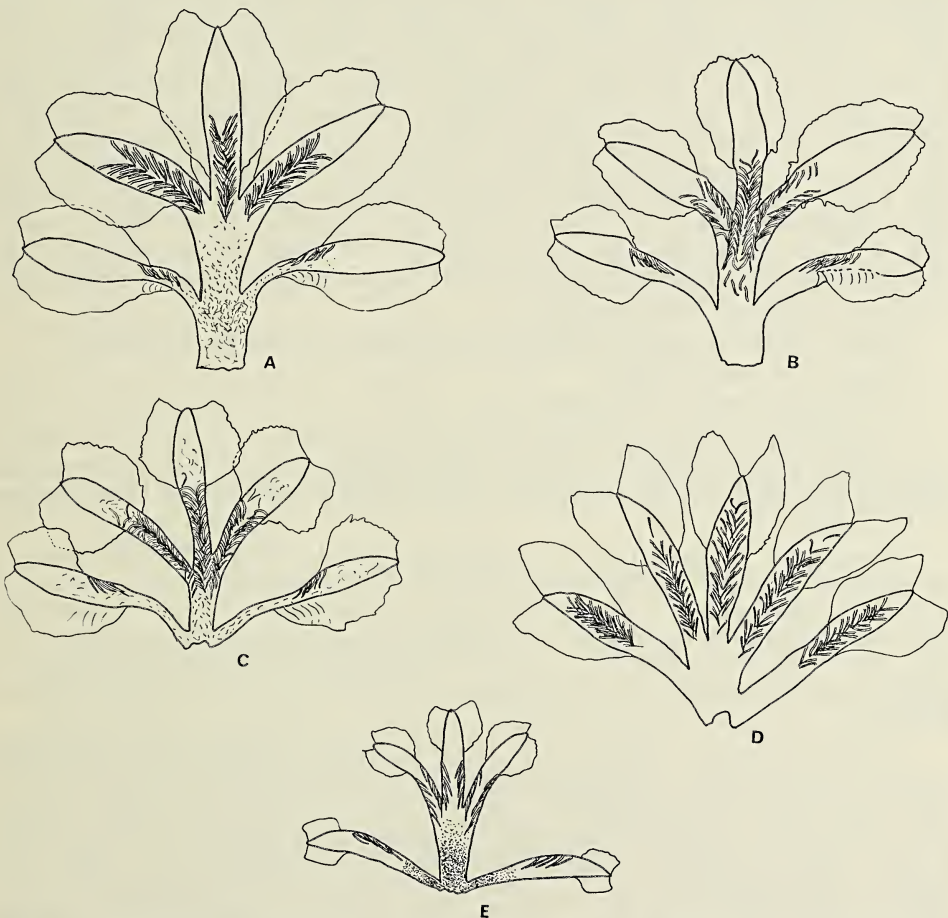


Fig. 1. Corollas of *Coopernookia* species. A, *C. georgei*; B, *C. chisholmii*; C, *C. barbata*; D, *C. polygalacea*; E, *C. strophiolata*.

2. *C. STROPHIOLATA* (F. Muell.), comb. nov.

Nomenclatural synonym: *Goodenia strophiolata* F. Muell. Fragm., 1: 119 (1859); Benth., Fl. Austr., 4: 60 (1869); E. Pritzel in Engl. Bot. Jahrb., 35: 550 (1905); Krause in Pflrch., 54: 60 (1912); Robertson in Black, Fl. S. Austr., 4: 822 (1957).

Viscid, diffuse to divaricate undershrub up to 1 m. tall. *Stems* woody, angular when young but becoming rounder with maturity, shortly stellate and glandular-pubescent when young but \pm glabrescent. *Leaves* spirally arranged, obovate to narrow-obovate or spatulate or elliptic, 10-35 mm. long, 2-15 mm. wide, narrowing very gradually towards the base into an indistinct linear petiole with a few scattered stellate hairs when young and glandular hairs buried under the varnish at maturity, viscid, dentate or serrate, the margin sometimes slightly recurved, terminated by an acute tooth or obtuse. *Flowers* arranged in terminal leafy thyrses or racemes; bracts leafy; pedicels 8-12 mm. long, viscid, with linear bracteoles c. 2 mm. long above the middle, articulate immediately above the bracteoles. *Sepals* linear-lanceolate to \pm elliptic, (2-) 4-7 mm. long, c. 1 mm. wide, adnate to the inner whorls only close to the base, entire, acute, viscid-varnished. *Corolla* bluish-white to white, 7-12 mm. long, stellate-pubescent outside, villous or almost glabrous inside, enate-barbate and with a \pm prominent pocket almost as long as the ovary; tube c. 1 mm. long: superior lobes falcate-narrow-obovate, 5-7 mm. long, 1-2 mm. wide with narrow (0.5 mm.) \pm equal wings on either side, not auriculate; inferior ones narrow-obovate, 4-8 mm. long, 1-2 mm. wide with wider (1 mm.) equal wings on either side: connate part of inferior lobes 3-5 mm. long. *Stamens* 5, free: filaments filiform, 4-5 mm. long; anthers oblong, 1-5 mm. long, obtuse. *Ovary* viscid except for the glabrous or slightly villous beak and with an almost obsolete dissepiment bearing 4-6 ovules; style villous, 4-5 mm. long; indusium truncate-obtriangular 1-5 mm. long, 2 mm. wide, slightly villous to glabrous, curved not folded with a \pm straight orifice beset with short (0.5 mm. or less) white bristles on both lips. *Capsule* globular, 5-7 mm. diam., viscid, 2- or tardily 4-valved. *Seeds* oblong, 3 mm. long, slightly compressed but not flat, yellow-brown, smooth, shining, strophiolate and with no wing or thickened rim.

Range: Western South Australia, into southern Western Australia.

Habitat: Sandy heaths.

Chromosome number: Unknown.

Typification: *G. strophiolata* F. Muell.—*Lectotype*—Fitzgerald Ranges, no collector (probably Maxwell) no. 286 (MEL 18346). There are two specimens attached to this sheet and two labels; I am selecting the lower left-hand specimen as the *lectotype*.

Discussion: Differs from *G. polygalacea* in the almost complete lack of stellate indumentum on the broader mature leaves and in the narrower wings. It is the most viscid and varnished member of the genus. There is some considerable variation in the shape and length of leaves, sepals and bracteoles. One specimen, "Wyalkatchem, S. B. Rosier no. 353, 2 Oct. 1963 (PERTH)", has elliptic dentate sepals. It is not thought advisable to recognize these variations as taxa.

Selected specimens examined: *Western Australia*, 98 miles east of Norseman, T. E. H. Aplin no. 1751, 5.9.1962 (PERTH): north of Gibson's Soak, J. S. Beard no. 2338, 5 Nov. 1962 (PERTH): Pingrup, W. E. Blackall no. 3026, 21 Sept. 1963 (PERTH): 20 miles south of Norseman, N. T. Burbidge no. 2700, 20.9.1947 (CANB 15298. PERTH): Doodlakine, W. V. Fitzgerald, Nov. 1903 (NSW 80810): Gnowangerup, C. A. Gardner no. 2121, 4 Oct. 1928 (PERTH): 2 miles east of Young River Station, J. W. Green no. 1236, 15 March 1957 (PERTH): 30 miles north-west of Fraser Range, R. Helms, 4.11.1891 (AD 96620139. NSW 80808): Merredin, M. Koch no. 2866, 19.10.1923 (NSW 80812): 32 miles north of Salmon Gums, M. E. Phillips, 6.11.1962 (CBG 011597. SYD): 20 miles south of Queen Victoria Spring, R. D. Royce no. 5333, 27 Jan. 1956 (PERTH): 2 miles south of Cundeelee, D. E. White no. W631004, Oct. 1963 (PERTH). *South Australia*. Mt. Beadell near Maralinga, H. Turner, 4.9.1960 (AD 96221150): Maralinga, T. W. Shilling no. 45, 23.9.1957 (AD 96010029. NSW 80811.K): Maralinga, F. L. Hill no. 830, 20.10.1953 (NSW 80809. CANB 117343. BM).

3. *C. GEORGEI*, sp. nov.

Frutex ascendens usque ad 1.5 m. altae. Folia sessilia vel subsessilia, elliptica vel anguste elliptica, 2.5 cm. longa, 0.8-2.5 cm. lata, dentata, glabrescentia. Flores in racemo dispositi; pedicellus pedunculum aequans, articulatus proxime super bracteolas lineares. Corolla malvina fauce alba, 15-20 mm. longa, extus stellato-pubescentia intus enationibus barbata; lobi alis latis sine auriculis. Ovarium cum dissepimento brevissimo bi-ovulato. Semina oblonga strophiolata, 5 mm. longa.

Slender, ascending shrub up to 1.5 m. tall, probably slightly viscid on the young branches. *Stems* up to 5 mm. diam. with a few scattered sessile glandular hairs when young but becoming glabrous. *Leaves* sessile or very shortly petiolate, spirally arranged, elliptic to narrow-elliptic, 2.5 cm. long, 0.8-2.5 cm. wide, dentate, very slightly recurved with a few scattered almost sessile glandular hairs on both surfaces when young but becoming glabrous. *Flowers* in terminal leafy racemes; pedicel and peduncle together 8-15 mm. long, glabrous or with a few scattered sessile glandular hairs, the pedicel about as long as the peduncle and articulate immediately above the bracteoles; bracteoles linear to narrow-oblong, 3-4 mm. long. *Sepals* linear to very narrow-ovate, 7-8 mm. long, up to 1 mm. wide, adnate to the inner whorls for more than half the length of the ovary, acute, entire, almost quite glabrous outside but with a few small simple hairs towards the apex on the inside. *Corolla* mauve with a white throat, 15-20 mm. long, stellate-pubescent outside, villous pubescent towards the base and enate-barbate inside and with an indistinct pocket almost as long as the ovary; tube c. 2.5 mm. long; superior lobes narrow-elliptic, 10-12 mm. long, 2 mm. wide with broad (2 mm.) \pm equal wings on either side, not auriculate; inferior lobes narrow-elliptic, 10 mm. long, 2 mm. wide with broad (2-2.5 mm.) wings on either side; connate part of inferior lobes c. 5 mm. long. *Stamens* 5, free; filaments narrow-linear, 3-4 mm. long; anthers narrow-oblong, 1.5 mm. long, obtuse or emarginate. *Ovary* covered with scattered, sessile, glandular hairs and with an almost obsolete dissepiment bearing 2 ovules; style villous, 6-7 mm. long; indusium depressed-obovate, 2 mm. long, 2-2.5 mm. wide, slightly villous, slightly folded with a curved orifice beset with long (almost 0.5 mm.) white bristles on both lips. *Capsule* oblong, c. 10 mm. long and 2 mm. diam., 2- or tardily 4-valved. *Seeds* oblong, 5 mm. long, 2 mm. wide, slightly compressed but not flat, yellow-brown, smooth, shining, prominently strophiolate and with no wing or thickened rim.

Range: Very limited distribution some 30-40 miles south-west of Ravensthorpe, Western Australia.

Habitat: Sheltered gullies on ranges.

Chromosome number; Unknown.

Typification: *C. georgei* sp. nov. *Holotype* north-eastern side of Whoogarup Range 30 miles south-south-west of Ravensthorpe, A. S. George no. 7201, Nov. 1, 1965 (PERTH)—*Isotypes* SYD. K.B.

Discussion: A distinctive species differing from *C. strophiolata* in the larger flowers and leaves which are scarcely viscid or varnished, the fewer (2) ovules per ovary, the more elongated capsule and the longer corolla tube.

Specimens examined: *Western Australia*. Western side of Thumb Peak Range, 40 miles south-west of Ravensthorpe, A. S. George no. 7168, Oct. 31, 1965 (PERTH): Phillip's Ranges, no collector, (Maxwell?) no. 139 (MEL 18343): Drummond no number (MEL 18342): Drummond, no. 355 (MEL 18340): Drummond, no number (MEL 18341).

4. *C. BARBATA* (R.Br.), comb. nov.

Nomenclatural synonym: *Goodenia barbata* R.Br., Prodr. 576 (1810): DC., Prodr. 7: 514 (1839): De Vriese, Gooden., 145 (1854): Benth., Fl. Austr. 4: 61 (1869): Moore et Bêche, Hbk. Fl. N.S.W. 307 (1893): Rodway, Tas. Fl. 102

(1903) : Krause, Pflrch., 54 : 62 (1912) : Ewart, Fl. Vict. 1068 (1931) : Curtis, Stud. Fl. Tasm., 2 : 401 (1963) : Beadle, Evans & Carolin, Handb. Vasc. Plts. Syd. Dist. & Blue Mts. 367 (1962).

Taxonomic synonyms : *Goodenia cistifolia* A. Cunn. ex DC., Prodr. 7 : 516 (1839) : De Vriese, Gooden., 150 (1854) ; F. Muell., Fragm. 2 : 110, 176 (1861). *Scaevola scaberula* Summerhayes in Kew Bull. 1927 : 356 (1927).



Fig. 2. Distribution of *Coopernookia* species. *C. chisholmii*, stippled area ; *C. barbata*, solid black area ; *C. polygalacea*, diagonally hatched area ; *C. strophiolata*, large black dots indicate localities.

Erect or ascending \pm viscid undershrub up to about 1 m. tall with a thin tap-root. *Stems* up to 4 mm. diam., usually weak, glandular-hairy and with scattered stellate hairs when young becoming \pm scabrous when old, ridged. *Leaves* spirally arranged, linear or very rarely narrow-oblong, sessile, 1-3 cm. long, 1-2(-5) mm. wide with revolute and entire or obscurely dentate margin, acute or obtuse, glandular-pubescent becoming scabrid on both surfaces with an occasional stellate hair, particularly on the lower surface. *Flowers* in loose terminal leafy racemes, the lowest partial inflorescences rarely 2-flowered : pedicels up to 20 mm. long, glandular-pubescent with two linear bracteoles 3-5 mm. long above the middle, articulated just above the bracteoles. *Sepals* very narrow-ovate to narrow-elliptic, 3-4 mm. long, 0.5-1 mm. wide, adnate to lowest part of ovary, glandular-pubescent with some stellate hairs, entire, acute. *Corolla* blue to pinkish-blue, 11-14 mm. long, glandular- and stellate-pubescent outside, villous towards the base inside, enate-barbate and with a pocket almost as long as the ovary ; tube c. 1 mm. long ; superior lobes narrow-elliptic, \pm falcate, 9-11 mm. long, 2 mm. wide with wings (1 mm. broad) on either side, scarcely auriculate ; inferior lobes narrow-ovate to elliptic, 8-10 mm. long, 1.5-2 mm. wide with wings about 1.5 mm. wide on either side ; connate part of inferior lobes 3-5 mm. long. *Stamens* 5, free : filaments filiform, 4-5 mm. long ; anthers elliptic, 2 mm. long, obtuse. *Ovary* glandular-pubescent with an almost obsolete dissepiment bearing 2 ovules ; style covered with long villous hairs,

7-9 mm. long; indusium depressed obovate, 1 mm. long, 2 mm. wide, villous, geniculate, not folded with an almost straight orifice beset with white bristles (c. 0.5 mm. long) on both lips. *Capsule* obovoid to oblong-elliptical, 5-7 mm. long, 3 mm. wide, glandular-pubescent except for the tip, 2-valved to the base. *Seeds* ellipsoid or oblong, 4-5 mm. long, scarcely compressed, yellow-brown, smooth, shining, strophiolate.

Range: South-eastern Australia including northern Tasmania.

Habitat: Dry sclerophyll forest and scrub.

Chromosome number: $n=7$ (voucher specimens marked with an asterisk below).

Typification: *G. barbata* R.Br.—*Lectotype*—Brown, Port Dalrymple (BM. photo SYD). Brown gives two localities in his Prodomus, 'J' and 'D', and states 'v.s.', whilst in his manuscript notes (BM. photo CANB) he gives "Blue Mts., Barralier and Port Dalrymple, Paterson". I have, so far, been unable to locate any specimen agreeing with the former locality. Brown apparently was at the new settlement at Port Dalrymple at the same time as Paterson who was commander there. Thus Paterson may actually have collected the specimen but it became included in Brown's collection. There seems little doubt that this was one of the specimens that Brown used to write his diagnosis in the Prodomus. *G. cistifolia* Cunn. ex DC.—*Holotype*—In Novae Hollandiae collibus ad Hunter's River, A. Cunningham (GEN. *Isotypes*—K.P.). *Scaevola scaberula* Summerhayes—*Holotype*—Ettrema River, south-west of Nowra on poor sandstone country, F. A. Rodway, Feb. 1927 (K. *isotype* NSW 100989).

Discussion: Can be distinguished from *C. chisholmii* by the leaf-shape. Not a particularly variable species except with regard to the indumentum. Some specimens are almost glabrous whilst generally glandular hairs are fairly abundant.

Selected specimens examined: New South Wales, New England, F. Campbell, Oct. 1882 (MEL 18315): Howes Valley to Putty, L. A. S. Johnson, 20 Sept., 1951 (SYD. NSW 18752): Khyber Pass, Rylstone, J. Peacock no. 6011, 26.2.1960, 28.11.1960 (SYD)*: Putty, J. Peacock no. 6012.5.1, 4.12.1960 (SYD)*: Mt. Wilson, O. D. Evans, 5.3.1927 (SYD): Camden, Leichhardt (MEL 18313): Yerranderie, R. H. Cambage no. 3107, 2.12.1911 (SYD. NSW 81204): Robertson District, S. Smith-White & H. Lancaster, Oct. 1951 (SYD): Nowra Rd. c. 3 miles north-east of Nerriga, L. G. Adams no. 1515, 24 Nov. 1965 (NSW 81195. MEL 183002): Moruya, J. L. Boorman, 11.1911 (NSW 81209): Bateman's Bay, J. L. Boorman, 6.1.1906 (BRI 062916): Clyde Mountain, lower slopes eastern side, O. D. Evans, 16.9.1926 (SYD): The Clyde, W. Bäuerlen no. 10, Oct. 1884 (MEL 18308): Eden, E. Cheel, 17.2.1903 (NSW 81230): Twofold Bay, no collector (MEL 18314): *Victoria*, Foot of Genoa Peak, E. F. Constable, 2.11.1964 (NSW 78631): Genoa and Howe Range, no collector (MEL 18319): Mallacoota, ex herb. T. S. Hart, 7.1.1936 (MEL 18317): *Tasmania*, Port Dalrymple, R. Brown. (This is the only specimen which I have seen that is supposed to have been collected in Tasmania).

5. *C. CHISHOLMII* (Blakely), comb. nov.

Nomenclatural synonym: *Goodenia chisholmii* Blakely in PROC. LINN. SOC. N.S.W., 54: 684 (1929).

Erect or ascending, few-stemmed shrub up to 1.5 m. tall. *Stems* weak, up to 8 mm. diam., woody towards the base, stellate-tomentose particularly when young with very few short glandular hairs or none. *Leaves* spirally arranged, narrow-elliptic to elliptic, almost sessile, 4-9 cm. long, 1-2.5 cm. wide, stellate-tomentose to pubescent on both surfaces, irregularly dentate to entire with the margin almost flat, obtuse. *Flowers* arranged in terminal leafy racemes the lowermost branches rarely 2-flowered; pedicels up to 2 cm. long, stellate-pubescent with two linear bracts 4-5 mm. long close under the flower, articulate immed-

ately above the bracteole. *Sepals* linear-elliptic, 4-6 mm. long, 0.1 mm. wide, stellate- and glandular-pubescent, acute, entire, adnate to the base of the ovary. *Corolla* mauve-pink 11-14 mm. long, stellate- and glandular-pubescent on outside, glabrous or with a few villous hairs towards the base inside, enate-barbate and with an obscure pocket about half as long as the ovary: tube < 1 mm. long; superior lobes very narrow-obovate, falcate, 9-11 mm. long 1.5-2 mm. wide with a narrow wing 1 mm. broad on both margins, scarcely auriculate; inferior lobes 3-4 mm. long. *Stamens* 5, free; filaments filiform, 4-5 mm. long; anthers narrow-elliptic-oblong, 1.5-2 mm. long, obtuse. *Ovary* glandular- and stellate-pubescent with an obsolete dissepiment bearing two ovules; style villous, 5-6 mm. long; indusium depressed obovate to truncate—obtriangular, 1 mm. long, 1.5 mm. wide, villous, slightly geniculate, not folded, with a \pm straight orifice beset with short white bristles less than 0.5 mm. long and even shorter on the lower lip. *Capsule* obovoid, 5-6 mm. long, 3 mm. wide, stellate and glandular pubescent, 2-valved almost to the base. *Seeds* oblong, 4-5 mm. long, slightly compressed but not flat, yellow-brown, smooth, shining, strophiolate.

Range: N.S.W. coast from the Hunter Valley to Port Macquarie.

Habitat: Wet sclerophyll forests.

Chromosome number: $n=7$ (voucher specimen marked with an asterisk below).

Typification: *G. chisholmii*—*Lectotype*—Kendall, F. M. Bailey, 9.1929 (NSW 76616). Blakely cites two specimens with the type description, viz., this lectotype and "Comboyne, E. C. Chisholm, Jan. 1925". There are two specimens in NSW. labelled Comboyne collected by E. C. Chisholm, one dated "2.1925" and the other "1.1926" I have therefore selected the only specimen which corresponds to both Blakely's description and citation.

Discussion: Distinguished from *C. barbata* by the leaf shape and margins, more numerous stellate and less numerous glandular hairs.

Selected specimens examined: *New South Wales*. Port Macquarie, E. R. Brown, 2.1897 (NSW 81401): The Comboyne, E. C. Chisholm, 1.1926 (NSW 76617. MEL 18320): Lorne via Kendall, A. W. Munro, 11.1950 (NSW 81398): Middle Camp, Cooperbrook State Forest, J. Peacock no. 6012.4.1, 3.12.1960 (SYD)*: near Wollombi Creek Ford, Broke Rd., C. Burgess, 12.1961 (CBG 005512).

Key to the Species

1. Lower surface of leaves at least tomentose with stellate or sub-stellate hairs.
 2. Leaf margins revolute; upper surface of leaves glabrescent 1. *C. polygalacea*
 - *2. Leaf margins flat or slightly recurved; upper surface of leaves tomentose 5. *C. chisholmii*
- *1. Lower surface of leaves glabrous or glandular hairy with very few stellate hairs.
 3. Leaves linear with revolute margins 4. *C. barbata*
 - *3. Leaves elliptic to obovate with flat or slightly recurved margins.
 4. Corolla 15-20 mm. long 3. *C. georgei*
 - *4. Corolla 7-12 mm. long 2. *C. strophiolata*

References

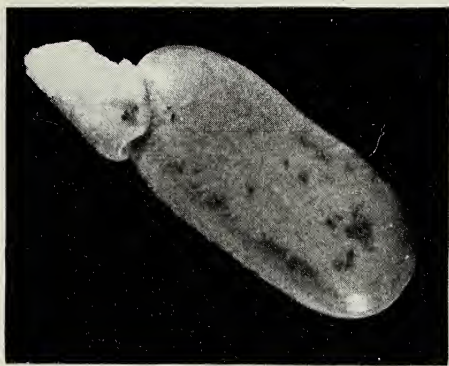
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EXPLANATION OF PLATE

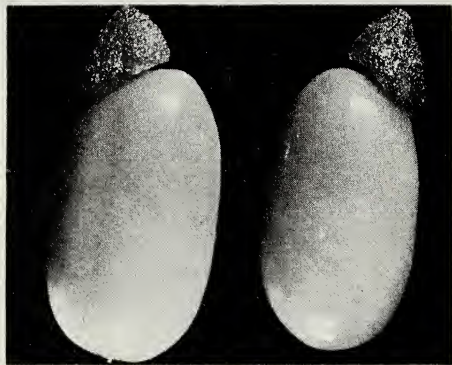
Seeds of *Cooperbrookia* species. A, *C. georgei*; B, *C. barbata*; C, *C. strophiolata*.

CORRIGENDA

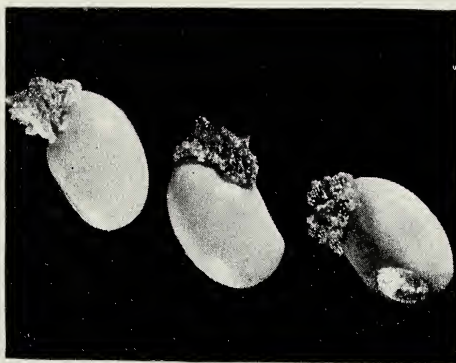
In the previous contribution of this series "The genus *Velleia* Sm.", PROC. LINN. SOC. N.S.W. 92 : 27-57, in Fig. 2 read *G. V. arguta*, and I, *V. discophora*. In Fig. 9 read *V. paradoxa* (●), *V. glabrata* (+).



A



B



C

Seeds of *Cooperookia* species.